
Tips and Traps in Interdisciplinary Research

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COMMENTARIES

Tips and Traps in Interdisciplinary Research

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Ecosystems strives to be an effective journal that reflects the many disciplines that contribute to ecosystem science and bridges a variety of boundaries (Carpenter and Turner 1998; Turner and Carpenter 1999). As we work to attract and publish research that integrates natural science, social science, and management systems, we have become increasingly aware of the challenges inherent in this endeavor. For example, peer review of articles that span distinct disciplines can be problematic, in part because studies or approaches considered interesting or worthwhile in one discipline may be considered quite differently in another. Furthermore, criteria for acceptance appear to vary between different disciplinary cultures. We already have seen evidence of these factors operating in the review process this year, leading to split recommendations that appear strongly driven by cross-disciplinary difference. More generally, the need for interdisciplinary research to assume a much more prominent role has been recognized as key to developing innovative questions and overcoming limitations to intellectual progress in ecosystem science (Likens 1998).

In the interest of stimulating discussion on how better to foster interdisciplinary research and its publication, we invited commentaries from researchers who have been actively working in the interdisciplinary research arena. Authors were invited to consider the following set of issues:

- benefits and pitfalls of conducting interdisciplinary research
- obstacles to publication of interdisciplinary research

- strategies for overcoming these obstacles
- suggestions for improving peer review
- advice to offer from your own experience to those embarking upon interdisciplinary research projects

The essays that follow provide a variety of perspectives on the challenges of pursuing interdisciplinary study. However, a number of common points emerged from the set. First, the lack of an existing conceptual framework within which the new approaches to interdisciplinary research in ecology fit was acknowledged. In essence, there is no “cook-book” of procedures for tackling interdisciplinary ecosystem science; indeed, our own personal observations suggest that “adaptive management” is common within many teams tackling questions that require bridges between the natural and social sciences. Second, interdisciplinary research is most likely a team effort, which requires a longer time frame for success compared with sole-investigator or disciplinary research. Establishing trust, understanding, the ability to communicate—and even friendship—are critical elements to establishing effective teams (Likens 1998). Third, the writing and reviewing of interdisciplinary articles both need further attention. Among authors, care must be taken to assure that the writing does not require knowledge of specialized citations, methods, or language in one’s own discipline. Reviewers must have a broad perspective, and special instructions to reviewers may be warranted. In turn, editors must have vision and move beyond scorekeeping in evaluating reviews.

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The challenges facing ecologists in the coming decades demand new approaches and solutions that cross traditional boundaries. Paraphrasing from Likens (1998), the goal of interdisciplinary research is that the whole (that is, the interdisciplinary team) should be greater than the sum of the individual parts (that is, individual disciplines). The essays that follow provide context for the importance of interdisciplinary research in ecosystem science (Daily and Ehrlich); illustrate team research efforts that are just getting off the ground (Redman); address interdisciplinary communication (Wear) and graduate education (Golde and Gallagher); deal with public attitudes and the applications of ecosystem science (Freudenburg and Alario); and challenge ecologists to build more effective teams (Naiman) and to be more constructive in their scientific interactions

while maintaining healthy criticism (Pickett and others). We hope these commentaries will instigate discussion and help improve our effectiveness at working across disciplinary boundaries, such that the insight gained from interdisciplinary research is truly greater than the sum of our individual contributions.

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